TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

CONTRACTOR	CONTRACT NO./TASK NO.	JOB ORDER NUMBER	APPROP. FY
	NAS5- TASK NO. AMENDMENT		
QSS Group, Inc.	99124 117	442-458-70-23-89	99

TASK TITLE: (NTE 80 characters; include Project name)

FSC's Flight System and Servicing Management and Integration

APPROVALS: (Type or print name and sign)

	DATE	ORG CODE	MAIL CODE	PHONE
ASSISTANT TECHNICAL REPRESENTATIVE (OR TASK MONITOR) James W. Barcus James W. Barcus	7/27/99	442	442	301-286-1458
BRANCH HEAD Frank Cepollina F. Michael Rich	7/27/99	CODE 442		PHONE 301-286-1266
CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) for Robert S. Lebair, Jr. Deborah A. Clark	7/30/99	CODE 560		PHONE 301-286-6382

FLIGHT HARDWARE, CRITICAL GSE OR SOFTWARE? (IF YES, NEED CODE 303 CONCURRENCE NEXT BLOCK)	CONTRACTING OFFICER'S QUALITY REP.	DESIGNATED FAM:
[X] NO [ ] YES	Larry Moore	

The contractor shall identify and explain the reason for any deviations, exceptions, or conditional assumptions taken with respect to this Task Order or to any of the technical requirements of the Task Order Statement of Work and related specifications. The contractor shall complete and submit the required Reps and Certs.

(To be completed by Contracting Officer)
C.O. Requested Quote on:
Date: AUG - 2 1999

Contractor will develop specification or statement of work under this task for a future procurement. [X] NO [ ] YES

Flight hardware will be shipped to GSFC for testing prior to final delivery. [ ] NO [ ] YES [X] N/A

Government Furnished Property/Facilities: [X] NO [ ] YES -- SEE LIST OF GFP (offsite only) / FACILITIES (onsite only)

Onsite Performance: [ ] NO [X] YES If yes: [X] TOTAL [ ] PARTIAL
If partial, indicate onsite work in SOW by asterisk (*)

Surveillance Plan Attached: [X] NO [ ] YES

Highlighted Contract Clauses: *(to be completed by Contracting Officer)*

Per Clause H.14, Task Ordering Procedure, subparagraph (f), the effective date of this task order shall be August 2, 1999.

INCENTIVE FEE STRUCTURE (check one)

(See Contract NAS5-99124, Attachment K, Incentive Fee Plan)

	_X_ No. 1	___ No. 2	___ No. 3	___ No. 4	___ No. 5
Cost	10%	50%	25%	25%	%
Schedule	15%	25%	25%	50%	%
Technical	75%	25%	50%	25%	%

(To be completed by Contracting Officer)

The target cost of this task order is $ 499,857 .
The target fee of this task order is $ 32,392 .
The total target cost and target fee of this task order as contemplated by the Incentive Fee clause of this contract is $ 532,249 .

The maximum fee is $ 47,343 .
The minimum fee is $0.

AUTHORIZED SIGNATURE:

THIS TASK ASSIGNMENT IS ISSUED ACCORDING TO THE CONTRACT CLAUSE "TASK ASSIGNMENTS AND REPORTS"

Lorrie L. Eakin — 2/15/00 — Lorrie L. Eakin, Contracting Officer

SIGNATURE OF CONTRACTING OFFICER | DATE | TYPED NAME OF CONTRACTING OFFICER

CONTRACTOR'S ACCEPTANCE:

AUTHORIZED SIGNATURE | DATE

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

CONTRACTOR	CONTRACT NO./TASK NO.		
	NAS5-	TASK NO.	AMENDMENT
QSS Group, Inc.	99124	117	

Applicable paragraphs from contract Statement of Work:

STATEMENT OF WORK: (Continue on blank paper if additional space is required)

See attachment.

PERFORMANCE SPECIFICATIONS:

See attachment.

APPLICABLE DOCUMENTS:

None.

TASK END DATE: 9/30/00

MILESTONES/DELIVERABLES AND DATES:

See attachment.

PERFORMANCE STANDARDS:

Schedule: On-time delivery/completion of the milestones/deliverables.
Technical: ATR's acceptance of the above.

FINAL DELIVERY DESTINATION (NAME, BLDG, ROOM):
J. Barcus, building 29, room 200

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

Task #: **117**

STATEMENT OF WORK:

1. Systems Management and Integration

- Provide systems engineering services for the development of all anomaly response products for the Servicing Mission including the Extra Vehicular Activity (EVA) contingency document; the SSE Malfunction Procedures and Anomaly Matrix; the operations Fault Isolation Procedures; Contingency Operations Procedures; and the Alternate Command Plans; and integration of these documents into a top level contingency Roadmap.
- Provide critical systems level interfacing between diverse areas of the HST Flight Systems and Servicing Project to ensure the timely transfer of critical, key information between the diverse EVA, SSE, Observatory Development Office, Science Instrument Office and the Servicing Mission Management. Participate in Preliminary and Critical Design Reviews either as presenters or key Review Team members. Ensure that information flows between the key functions and up to program management, ensuring the timely resolution of issues.
- Provide engineering services for the development of the Servicing Mission Safety Data Package (SDP) including reviewing and rewriting the descriptive section of the SDP; reviewing and rewriting Hazard Reports for the Phase 2 and Phase 3 SDPs; meeting with the JSC Payload Safety Review Panel and various working groups to present and defend the SDP; and assisting in the development of Non-Compliance Reports (NCRs) required to support deviations for the safety requirements.
- Provide systems engineering and integration and test services for the Optical Telescope Assembly ORUs (Including the Fine Guidance Sensor Assembly). Participate in the Integration and Test Planning sessions, review procedures, write work order inputs, monitor testing with the Vehicle Electrical Simulator Test station, and advise on tools, fixtures, and test equipment.
- Provide engineering evaluation of latch condition and need for refurbishment including; physical inspection of latches on flight instruments, Scientific Instrument Protective Enclosures (SIPEs), and tooling and fixtures for wear and damage; reviewing recommendations made by latch contractors for repair and refurbishment of latches and give independent recommendations on required effort; travelling to the latch contractor's facility and review work in process, testing of latches, and participation in Program Reviews; maintaining the current latch historical records and status (which are contained in computer data base) and issuing the bi-monthly OTA Latch Records Report; updating the data base whenever latches are removed, installed, shipped, or received; providing real time information on any of the approximately 40 sets of latches currently in use; and assisting the Project in updating the latch schedules for the monthly schedule status report.
- Provide systems engineering services for the High Fidelity Mechanical Simulator (HFMS) maintenance, configuration, and operation with regard to OTA latches, OTA ORUs, and axial and radial instruments including inspecting and observing the HFMS and keeping track of planned activity and simulation needs; including comparing the HFMS equipment with close out photos and drawings of the Hubble Space Telescope (HST) and advise of any need for modifications as fidelity needs change; tracking changes made during maintenance missions and insure that these changes are incorporated into the HFMS; and acting as advisors and mentors to other engineers and technicians who are operating the HFMS.

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

Task #: **117**

- Provide engineering services for space support equipment (SSE) such as carriers and equipment protective enclosures relative to interfacing with OTA ORUs and latches including review of carrier and SIPE designs and procedures; observing the installation of ORUs and Scientific Instruments, with particular attention to latch operation; serving as advisor and mentor to engineers and technicians designing and operating the carriers and SIPEs, and providing documentation on latch interface and operation.
- Provide systems engineering services to the HST Neutral Buoyancy Laboratory (NBL) activities, and end-to-end and development tests during HST ORU changeout activities including assisting the EVA working group in capturing and recording Astronaut hardware evaluations; developing procedures and contingency plans for hardware changeouts; providing SCUBA diving support to underwater EVA-suited subjects during test runs as well as performing set-up/breakdown of mockup hardware during daily activities; and providing the unique capability of underwater digital still photography during the daily NBL runs-providing pictures to enhance the daily debriefs. The current schedule for the remaining NBL activities is listed below.

  HST SM3A NBL Simulation Schedule

NBL SIM 99.5	July 22-28
NBL SIM 99.6	August 16-23
NBL SIM 99.7	September 15-16
NBL SIM 99.8	September 29-30

- Provide engineering guidance, services, development, and technical review of all HST-related NASA Shuttle Flight documentation and unique HST documentation including: development and review of the Payload Integration Plan (PIP) and all its Annexes (Annex 1, Annex 2 part 1, Annex 2 part 2, Annex 4, Annex 5, ICA, Annex 7, Annex 8, OMRSD, Annex 11); all relevant Flight Data Files (Deploy checklist, EVA Checklist, Flight Plan, Malfunction Procedures, Orbiter Operations Checklist, Photo-TV Checklist); participate and provide substantial input to the Flight Rule development and the development of the HST Servicing Mission Timeline and its associated Command Plan.
- Provide systems engineering for the planning, coordination, and management of EVA activities involving HST flight and ground systems hardware including: coordination of all aspects of the EVA Configuration Control Board (EVA-CCB) activities; providing engineering inputs to the development of various Crew Aids and Tools (CATS); and responsibility for the continuing development and devising the proper usage of a thermal glove box at GSFC.
- Provide engineering guidance for incoming inspection, parts suppliers, and failure analysis laboratory personnel to assure that Code 442 reliability goals are met.
- Provide project and selected contractor designers with expert guidance in the disciplines relative to connectors, relays, and wire and cable.
- Provide systems engineering services for hardware development including computer simulations and assisting in control algorithm development.

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

Task #: **117**

- Provide system engineering services for the SM3 internal GSFC Simulations and the Joint Integrated Simulations (JISs). Contractor's staff will be required to address System Engineering activities and issues raised during the simulations to include manning consoles, addressing both Normal and Anomalous Operations, providing recommendations to the Servicing Mission Manager (SMM) for anomaly resolution, and performing Event tracking. The current schedule for the Internal GSFC Simulations and the JISs is listed below.

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

Task #: **117**

HST SM3A SIM SCHEDULE

SIM 8 EVA 3/ Planning (11 hours)	7/19/99	Briefing	Electronic (email)	
	7/22/99	SSAT; SSR	8:00 AM	2:00 PM
		Planning	2:00 PM	7:00 PM
		Debrief	7:00 PM	7:30 PM
SIM 9 EVA 4/ Deploy (9 hours)	8/19/99	Briefing	Electronic (email)	
	8/24/99	HGA Deploy	8:00 AM	8:30 AM
		HGA Deploy	8:30 AM	9:15 AM
		Deploy	9:15 AM	3:45 AM
		Debrief	4:00 PM	4:30 PM

HST SM03A JIS SCHEDULE

REV E 7/12/99

EVENT	DATE	ACTIVITY	LOCAL TIME (CDT)		SIM PERIOD (MET)	
			START	END	START	END
JIS 7	7/28/99	EVA 1	8AM	4PM	2/18/99	3/2/99
8 HRS						
	7/28/99	DEBRIEF	4PM			
JIS 1	7/29/99	RNDZ	8AM		1/16:30	
21.5 HRS	7/30/99			5:30 AM		2/14:00
	7/30/99	DEBRIEF	12PM			
JIS 2	9/1/99	EVA 2	8AM	6PM	3/18/99	4/4/99
10 HRS						
	9/1/99	DEBRIEF	6:00 PM			
JIS 3	9/2/99	SHORT	8AM	1:30PM	6/16:30	6/22/99
11 HRS		DEPLOYS	2:30PM	7PM	6/17:30	6/22/99
	9/2/99	DEBRIEF	AFTER EACH RUN			
JIS 4	8/9/99	EVA 3	5PM		4/2/99	
24 HRS	8/10/99			5PM		5/2/99
	8/10/99	DEBRIEF	5PM			
JIS 5	9/8/99	EVA 1/2	8AM		2/18/99	
32 HRS	9/9/99	LONG SIM		4PM		4/2/99
	9/10/99	DEBRIEF	8AM			
JIS 6	9/29/99	RNDZ	8AM	7:30PM	1/16:30	2/14:00
11.5 HRS						
	9/29/99	DEBRIEF	7:30PM			

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

Task #: **117**

2. Development of On-Orbit Multimedia Support System

The contractor shall develop a Web-based model of the HST that will easily identify specific regions of the HST and access associated indexed multi-media (photo and video) products. Links shall be provided for: an interface to view multi-media products including details; a gateway to multi-media products or the capability to identify the products available for a specific article, such as "Bay 10 MIL", and an access to videos and photos taken during servicing mission on-orbit activities.

The system shall support a panoramic viewing capability and permit and a high speed subset image display.

The contractor shall populate the database with data describing the anomalies found on the HST during SM2, including problems wit ML1, -V2 AS door latches/bolts, paint chips from handrails, and areas manifested for change out during SM3.

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

Task #: **117**

PERFORMANCE SPECIFICATION

1. System Management and Integration

The System Engineering Services shall be provided as specified in the SOW with the schedules and major milestones listed in the attachment. Performance for these milestones will be assessed on the quality and correctness of engineering solutions to HST Operations issues.

Specifically for the SM3 internal GSFC Simulation and Joint Integrated Simulations (JISs), the contractor's Staff will be required to address System Engineering activities and issues raised during the simulations. This will include manning consoles, addressing both normal and anomalous Operations, providing recommendations to the Servicing Mission Manager (SMM) for anomaly resolution, and performing Event tracking.

During the NBL simulations the services on which performance will be assessed will include in-tank monitoring of the astronaut activities, the provision of HST SSE equipment related directions, and the identification of HST SSE equipment related problems and issues.

2. Development of On-Orbit Multimedia Support System

The Multimedia Support System will be accessed against a system specification as a Web based system with full internet capabilities, user friendly, with minimum maintenance, and a quick interactive interface. The system will be populated with key imagery form SM2 to provide a "before" reference and with imagery from component scheduled to be brought up for SM3A to provide an effective visual tool for mission HST orientation and assessment. The System performance and special capabilities will be assessed in demonstrations to the Project and in final integration and testing in conjunction with the Project.

TECHNICAL WORK MAY NOT BEGIN PRIOR TO CO APPROVAL

NASA/GODDARD SPACE FLIGHT CENTER

REQUEST FOR TASK PLAN / TASK ORDER

Contract NAS5-99124

Task #: **117**

MILESTONE/DELIVERABLES AND DATES:

1. Systems Management and Integration

Milestones	Date
1) Provide system engineering services for the SM3 internal GSFC Simulation and the Joint Integrated Simulations (JISs)	Begin preparations for 5 day prior to the Simulations and complete after debrief and any actions are closed. Note: Current schedule listed in the SOW.
2) Provide Astronaut Monitoring and equipment direction services to the Shuttle crew during the NBL Simulations.	Begin preparations 5 days prior to the scheduled NBL Simulations and complete after debrief and any actions are closed. Note: Current schedule listed in the SOW.
3) Update SM3 latch record report	August 28, 1999
4) Provide EVA-CCB Minutes	Monthly through September; last day of month

2. Development of an On-Orbit Multimedia Support System

Milestones	Date
1) Demonstrate Panoramic Viewing Capability	July 1999
2) Demonstrate Image Pixel Streaming Capability	August 1999
3) Perform Operational System Integration, Testing, and Simulations	~~September 1999~~ October 30, 1999
4) Complete Primary Image Population of Web page	September 30, 1999
5) System Demonstration to the HST Servicing Project	September 30, 2000 Note: Dates on 1, 2, and 3 are subject to scheduling with HST Project